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## PATENT SPECIFICATION

Application Date: Oct. 14, 1932. No. 28,730/32.

411.847



Complete Accepted: June 14, 1934.

### COMPLETE SPECIFICATION.

#### Improvements in or relating to Self Locking Nuts.

I, PIETER VAN GELDEREN, Oppert, 171, Rotterdam, Holland, a subject of the Queen of the Netherlands, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention is for improvements in or relating to self locking nuts.

A device for locking a nut in position on a bolt has already been proposed wherein an axial slot is provided at the end of the bolt whilst a pointed cone is disposed on the nut within the screw threaded portion thereof so that when the nut is screwed on to the bolt this cone presses into the slot in the bolt and forces apart the portions of the nut divided by the slot. By this means the nut is firmly secured on the bolt. With this device however there is the disadvantage that, after the nut has been turned a few times, the bolt will be clamped so firmly in the nut as a result of the forcing apart of the portions of the bolt that it will be impossible to turn the nut to the required position on the bolt.

A device for locking a nut in position on a bolt has also already been proposed wherein a washer, disposed between the nut and the member against which the latter is arranged to be screwed, is provided with a U-shaped extension the plane of which is parallel to the axis of the bolt and which is arranged to enter into a longitudinal slot in the bolt when the nut is screwed home and thus splay out the end of the bolt. This device has the disadvantage that there is considerable friction both between the U-shaped extension and the slot and between the washer and the nut and consequently considerable force is necessary to move the nut along the bolt.

The object of the invention is to overcome the disadvantages set out above which are present in the known devices.

According to the invention there is provided a device for locking a nut in position on a bolt wherein an element of conical shape is mounted so as to be disposed coaxial with the axis of the nut and ex-

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terior of the screw threaded portion thereof so that the pointed end of the element is arranged to enter into an axial slot formed in the end of the bolt when the nut is screwed on to the bolt and thereby splay out the end of the bolt extending beyond the screw threaded portion of the nut in such a manner that the cross section of the splayed portion is greater than the normal cross section of the bolt, the conical element being fixed axially relatively to the nut and disposed within a space located beyond the screw threaded portion of the nut and of a cross-section larger than the external diameter of the bolt.

The invention will be hereinafter described with reference to the accompanying drawing in which:—

Figure 1 is a section through the nut and the cone arranged therein.

Figure 2 is a view of the bolt with an axial slot.

Figure 3 is a view partly in section of the bolt with the nut screwed and tightened thereon, and

Figure 4 is an elevation of the bolt with the nut screwed and tightened thereon.

The nut 1 is provided with a supporting member 2, which may be in the form of a closed cap or a hoop. Mounted in the end of the nut 1 is a cone 3 having the axis thereof arranged coincident with the axis of the nut. The cone 3 may form an integral assembly with the supporting member or cap or may also be inserted therein and if necessary be rotatable relatively thereto. The space 4 within the member 2 is wider than the cross-section of the bolt 5.

The bolt 5 is provided with an axial slot 6, so that when the nut 1 is screwed on to the said bolt, the apex of the cone 3 enters into the slot 6 in the bolt, as shown in Figure 3, and thereby causes the portions 7 and 8 at the end of the bolt formed by the slot 6 to be splayed apart from one another. By this means the nut is secured.

The nut secured in this manner has not, on the occurrence of vibrations a tendency to become loosened, but has on the contrary the tendency to screw-up even more tightly, since the portion of the bolt ex-

terior of the screw threaded portion of the nut is of a larger diameter than the portion of the bolt within the screwed threaded portion of the nut. Therefore, when the nut is tightened up, it is automatically secured to the bolt.

By an entirely closed design of the cap 2, as shown in the drawing, the securing device is also protected from rusting, and a further provision against the formation of rust may be made by filling the cap-space 4 wholly or partly with grease before tightening up.

Although the nut is secured it may nevertheless be easily unscrewed again, provided considerable force is exercised on turning the nut so as to loosen it. On unscrewing the nut in this manner the cone is removed from the slot in the bolt and the nut may then bring together again the bent-out portions of the screw-bolt.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A device for locking a nut in position on a bolt wherein an element of conical

shape is mounted so as to be disposed coaxial with the axis of the nut and exterior of the screw threaded portion thereof so that the pointed end of the element is arranged to enter into an axial slot formed in the end of the bolt when the nut is screwed on to the bolt and thereby splay out the end of the bolt extending beyond the screw threaded portion of the nut in such a manner that the cross section of the splayed portion is greater than the normal cross section of the bolt, the conical element being fixed axially relatively to the nut and disposed within a space located beyond the screw threaded portion of the nut and of a cross-section larger than the external diameter of the bolt.

2. A device for locking a nut in position on a bolt substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 14th day of October, 1932.  
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15, South Street, London, E.C. 2,  
Agents for the Applicant.

FIG:1

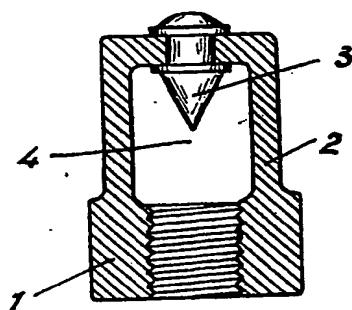


FIG:2

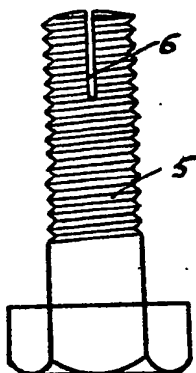


FIG:3

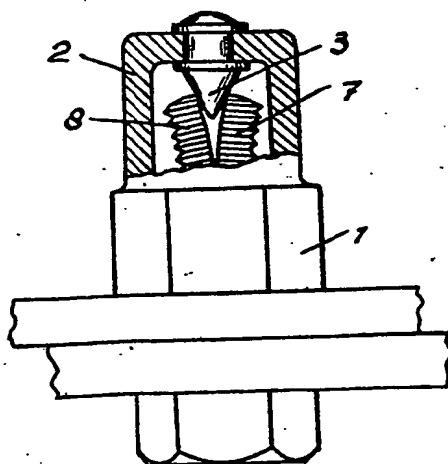
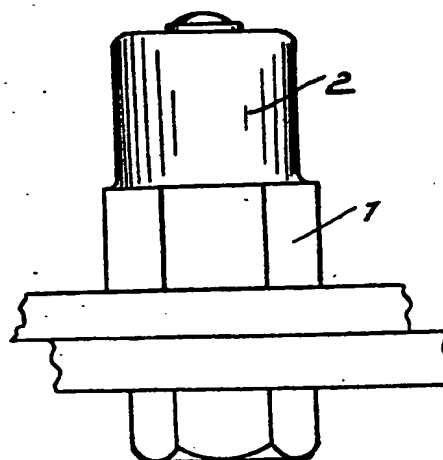


FIG:4



Malby &amp; Sons, Photo-Lith.

[This Drawing is a reproduction of the Original on a reduced scale.]

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